

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

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**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year)

11 -08- 2004

Applicant's or agent's file reference  
BP108517/AS

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.  
PCT/FI 2004/050041

International filing date (day/month/year)  
19.04.2004

Priority date (day/month/year)  
17.04.2003

International Patent Classification (IPC) or both national classification and IPC  
F01N 3/022, F01N 3/28

Applicant

Ecocat Oy et al

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. For further opinions, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/FI 2004/050041

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
 This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
 a sequence listing  
 table(s) related to the sequence listing
  - b. format of material  
 in written format  
 in computer readable form
  - c. time of filing/furnishing  
 contained in the international application as filed.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority for the purposes of search.
3.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/FI 2004/050041

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	13-15, 17-21, 23	YES
	Claims	1-12, 16, 22, 24-28	NO
Inventive step (IS)	Claims		YES
	Claims	1-28	NO
Industrial applicability (IA)	Claims	1-28	YES
	Claims		NO

2. Citations and explanations:

The invention relates to a porous sheet for treating exhaust gases in open channels. At least part of the porous sheet has a covering support with pores over 10 nm and particles over 1,4  $\mu$ m. With open channels instead of closed channels the clogging is minimal.

The most relevant documents cited in the Search Report are:  
D1: US4293447A1  
D2: US2002/0141912A1

Document D1 is considered to disclose the most relevant prior art.

This document relates to a plate-shaped catalyst comprising a metal net, a finely divided porous carrier retained on the metal net with a binder and covering the metal net, and an active component supported on the carrier (see the abstract). The net may have openings about 10- to about 100 mesh. The porous carrier can be alumina, silica and zeolite (see column 2, line 51). In example 1 titania powder up to 44 $\mu$  in particle size is used on an 18 mesh metal net. A suggested corrugated catalyst with open channels is demonstrated in figure 3 and example 2.

It is considered to be obvious that the porous carrier in D1 has pores over 10 nm.

The invention according to claims 1-5, 7-11, 16 and 24-28 lacks novelty in view of D1.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: BOX V

In claims 6, 12-15 and 17-23 slight constructional changes in the sheet and substrate of claims 1 and 16 is defined which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claims 6, 12-15 and 17-23 lacks an inventive step.

Document D2 relates to a catalyst supported on a porous mesh-like structure with open channels (see abstract and figure 2). The mesh-like material is comprised of fibres or wires (see paragraph 0042). A catalyst is supported on a particulate support that is supported on the mesh-like material. The average particle size of the particulate on which catalyst may be supported does not exceed 200 microns (see paragraph 0048). The mesh-like catalyst support is provided with corrugations to provide turbulence to create a desired pressure differential across the material to promote the flow of the fluid into the mesh pores and to the opposite side of the material (see paragraph 0049). The mesh-material that is coated has a pore size of no greater than about 50 microns (see paragraph 0074). Vertical orientation of the packing relative to the flow direction is desired to optimize the pressure drop (see paragraph 0090). See also the examples where platinum impregnated alumina is coated on a MEC structure. Catalysts of this kind can be used for the removal of combustion products of stationary diesel and gasoline engines (see paragraph 0004).

The invention according to claims 1-12, 16, 22 and 24-28 lacks novelty in view of document D2.

In claims 13-15, 17-21 and 23 slight constructional changes in the sheet and substrate of claims 1 and 16 is defined which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claims 13-15, 17-21 and 23 lacks an inventive step.